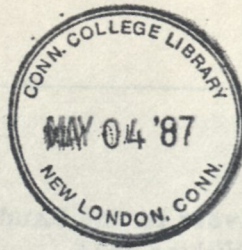


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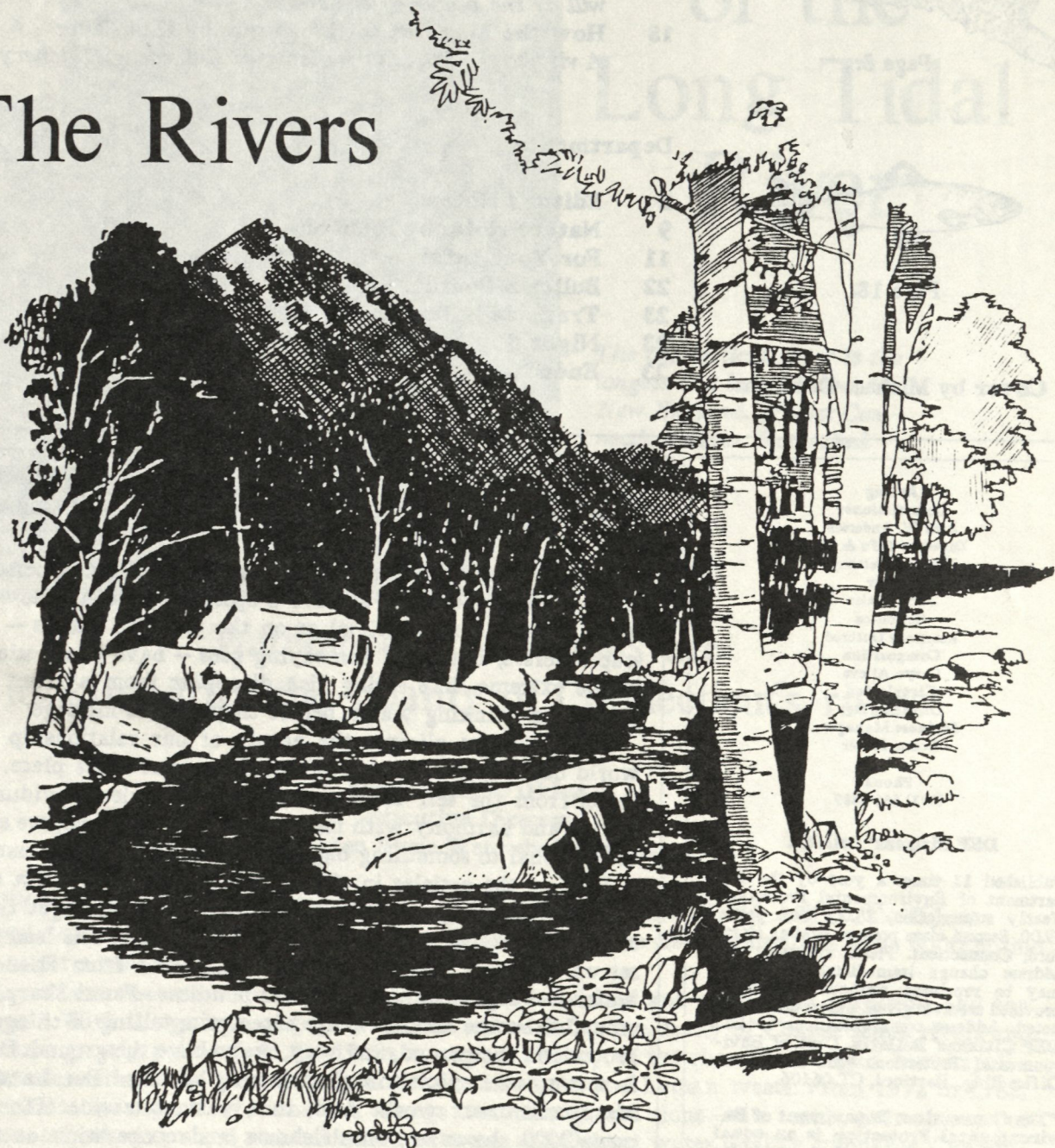


Citizens' Bulletin

Volume 14 Number 8 April 1987 \$5/yr.

The Connecticut Department of Environmental Protection

The Rivers



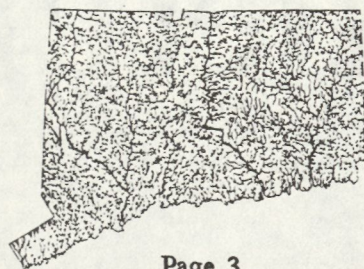
After two centuries of decline,
a remarkable recovery.

Citizens' Bulletin

April 1987

Volume 14 Number 8

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Page 3.



Page 18.

Cover by Michael D. Klein

Features

- 3 **The Rivers in the Land of the Long Tidal River** by Suzanne Wilkins, et al.
Private citizens are taking responsibility for our 2500 rivers and streams.
- 12 **Trout Stream** by Donald F. Lee, with drawings by Daniel R. Landrie
A trip back to a special fishing spot, nicely illustrated.
- 14 **Update on Environment/2000** by Robert Paier
The DEP document is transformed into a true expression of the will of the people of the state.
- 18 **How the Fish Get to the Rivers** by Kim Nauer
A visit to the Bureau of Fisheries' Quinebaug Hatchery.

Departments

- 2 **Editor's Note**
- 9 **Nature Notes** by Penni Sharp
- 11 **For Your Information** by Leslie Lewis
- 22 **Bulletin Board**
- 23 **Trailside Botanizer** by Gale W. Carter
- 23 **Night Sky** by Francine Jackson
- 23 **Endnote**

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Editor's Note

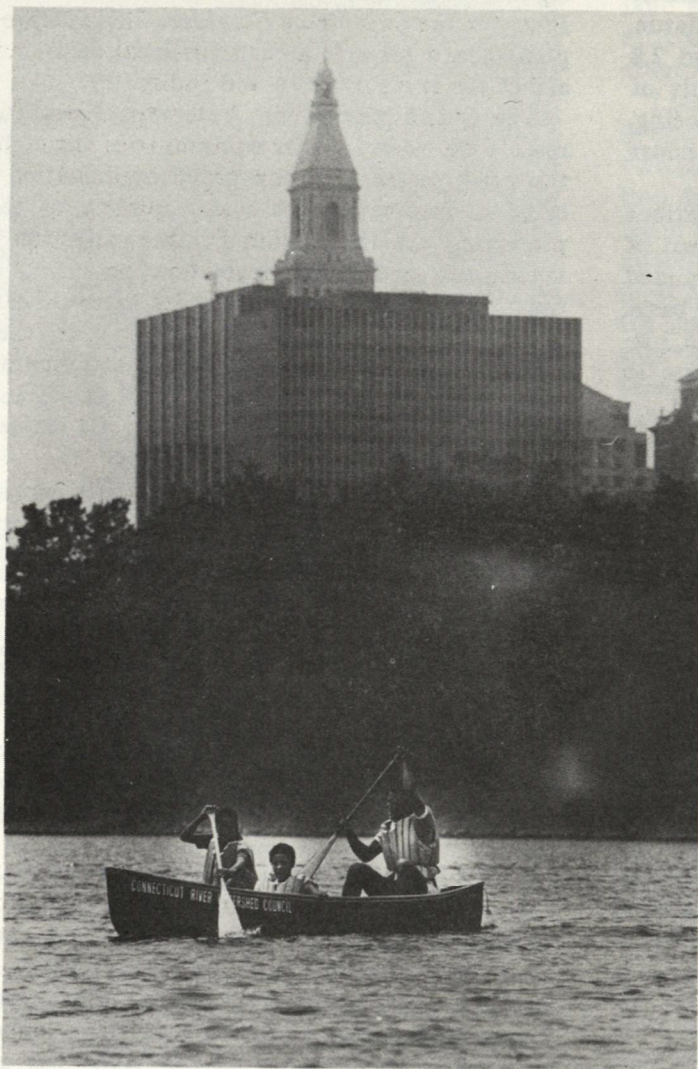
People wake up to environmental reality in different, personal ways. Some are lucky enough to have a special grown-up show them the ropes. Others learn at school or on the job. Still others — the really stupid horses, as the old Zen saying goes — have to experience things in the extreme, like seeing fish disappear from a river, or tasting gasoline in drinking water, before they get the message.

But, once you glimpse the nature of our relationship to the big world outside, then a kind of turning-about takes place. The focus shifts from the self to others, from the single individual to cooperation and harmony with many. To varying degrees, we subordinate the personal to something bigger and, we hope, longer-lasting.

Most of the articles in this month's *Citizens' Bulletin* came from non-DEP people, people who, one way or another, got the message, and now work to make things better for others. The lead article was set up by Suzie Wilkins, with contributions from friends in other watershed organizations. Three old buddies — Penni Sharp, Gale Carter, and Francine Jackson — are here again, telling of things under the ground, on the ground, and way, way above the ground. Don Lee sent in a story of a special, magical fishing spot and Dan Landrie offered his excellent art work. And, in a vast statewide effort, *Environment/2000* shows us unselfishness and cooperation at the highest levels of policy planning.

How did we manage to put this magazine together? How are we going to keep Connecticut safe and clean and healthy? Same answer — with a little help from our friends, that's how.

R.P.



Rivers in the Land of the Long Tidal River

The Connecticut River is the longest and largest river in New England. (Photo: Connecticut River Watershed Council.)

Watershed associations are
looking after the quality of Connecticut's rivers

Suzanne C. Wilkins
Executive Director
Farmington River Watershed Association

CONNECTICUT, ONE OF THE SMALLEST AND MOST DENSELY-POPULATED STATES, is blessed with over 2500 rivers and streams. Collectively, these rivers contribute some 6000 billion gallons of water a year to Long Island Sound.

These rivers have been used for transportation, as sources of food and power, for recreation, and for waste disposal. With the growth of population and industrialization, many of Connecticut's rivers and streams became grossly polluted. In the 1960s, a massive cleanup of the rivers was begun. Municipalities and factories constructed treatment facilities for industrial and human waste. From 1972 to 1982, some \$1.2 billion was spent for municipal sewage treatment plants alone. As a result, over ninety percent of Connecticut's rivers and streams now meet state and federal water quality standards. Currently, the state oversees some 706 permitted discharge facilities.

Connecticut's 8400 stream-miles flow through pristine natural settings, as well as rural, suburban, and urban areas. Of this total, some 122 miles on 17 rivers are listed on the Nationwide Rivers Inventory by the National Park Service as having special scenic significance.

Cleaner rivers mean improved habitat for wildlife, including rare and endangered species. One suc-

cess story has been the reintroduction of the Atlantic salmon to the state's waters after a 200-year hiatus. Recreation has also increased, with an estimated 2.8 million fishing trips taken annually in pursuit of Connecticut's 53 freshwater fish species. Canoeing, swimming, kayaking, and tubing offer untold hours of pleasure.

In Connecticut, a number of watershed associations are dedicated to the maintenance and improvement of the rivers. Some of these groups are formally funded and staffed, while others operate on a volunteer basis. Each river is unique, with its own natural and historic resources to protect and its own problems to remedy.

Collectively, the state river groups meet periodically to exchange information and ideas. More recently, these organizations have been discussing ways to get a State Rivers Program under way. Both the National Park Service and American Rivers Conservation Council, based in Washington, are working with Connecticut to advance this concept. Some 27 states already have rivers programs which vary dramatically in their scope and ability to protect rivers. The less successful programs have no funding or enforcement capabilities, while the better ones have sound laws and regulations, based on firm data, to protect water quality and land use.

Through a Connecticut State Rivers Program, the DEP would be able to manage our riverine resources in a comprehensive manner. The discussions to date have primarily focused on the direction of such a program, given the existing framework of resources and land use management programs.

The Quinnipiac River

by

Norman VanCor

Quinnipiac River Watershed Association

THE QUINNIPIAC RIVER FLOWS 54 MILES from Farmington to New Haven. Its drainage basin covers about 3.5 percent of the land area of Connecticut.

Trout fishing in quiet solitude is enjoyed along the wooded Meriden Gorge. You can also feed the fish and bird-watch from the porch of the famous "Britannia Spoon Restaurant" in Yalesville.

There are beautiful areas along the Quinnipiac, yet much of its length is characterized by poor water quality, due to organic pollution and industrial loading. While efforts are under way to improve this situation, a new threat — diversion — confronts the Quinnipiac. To expand regional water supply, groundwater wells along the river's edge are proposed. If approved, these wells could reduce the river's flow and thus concentrate discharges and downgrade water quality.

In 1981, the South Central Regional Planning

Agency drew up a *Preservation and Recreation Action Plan for the Quinnipiac Corridor*. This comprehensive plan should provide a basis for local decisions which affect the river directly and indirectly.

The Quinnipiac River Watershed Association represents the seven major communities through which the river passes. The non-profit organization is dedicated to improving the water quality of the river, protecting the river from further pollution and development, enhancing recreation potential, and encouraging public awareness of its natural beauty.

This spring, the QRWA will sponsor the eighth annual canoe race, an event which attracts more people every year. A massive cleanup of debris and fallen trees is undertaken annually by all communities along the river.

The QRWA is a volunteer-run outfit, but it is now in search of an executive director. For further information, contact Norman VanCor, QRWA, 80 Hinman Street, Cheshire 06410.

The Farmington River

by

Suzanne C. Wilkins

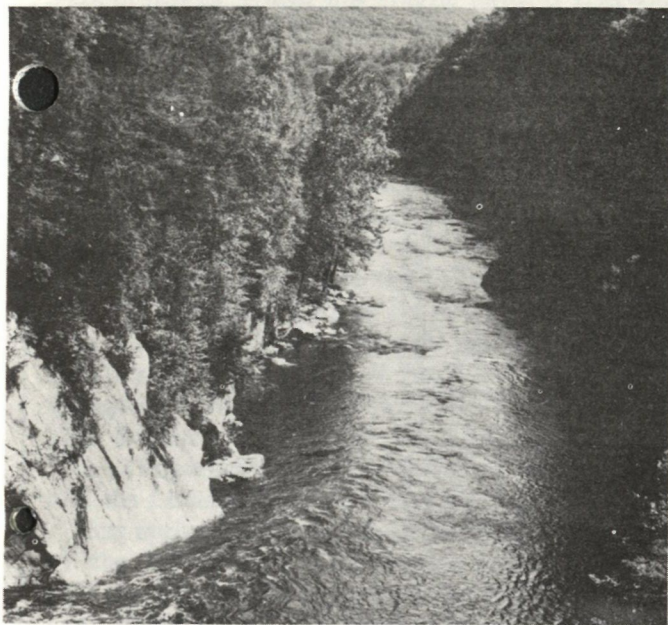
Executive Director

Farmington River Watershed Association

THE FARMINGTON RIVER — 81 miles in length — flows from the Berkshire foothills in Becket, Massachusetts, south into Connecticut, and then north, emptying into the Connecticut River north of Hartford. Despite its proximity to major metropolitan areas, many stretches of the Farmington remain "near wild." Indeed, portions of the river are currently under study in the Federal Wild and Scenic Rivers Program.

The Farmington is among the most heavily-used of Connecticut's rivers. The Farmington River:

- provides 19 billion gallons annually for 100 percent of Greater Hartford's water supply.
- boasts the finest trout fishing in the state, enhanced by an extensive state stocking program.
- replenishes aquifers adjacent to the river, upon which many Farmington Valley residents rely for water supply.
- provides, close to major urban areas, a wide variety of active and passive recreation for residents and tourists.
- is part of the Federal Atlantic Salmon Restoration Program.
- offers both recreational and competitive boaters river conditions from gentle flatwater to Class IV whitewater.
- sustains "near wilderness" areas, which provide habitat for a number of unusual and rare species.
- dilutes and disperses an average of 20 million gallons a day of treated waste from over a dozen Valley sewage treatment plants.



The Farmington River, one of the state's most intensively-used rivers, still sustains near-wilderness areas, providing habitat for unusual and rare species. (Photo: Suzanne Wilkins)

Balancing the Farmington's increasing multiple-use is a challenge for the 1400-member, 33-year-old Farmington River Watershed Association. Founded initially to address the problem of poor water quality in the river, FRWA has dealt with hazardous waste spill prevention, Atlantic salmon restoration, wetlands protection, hydropower applications, groundwater protection, and water quantity.

The FRWA works closely with state and local officials and others on policy matters affecting water supply and water conservation. It also provides staffing for the Farmington River Advisory Committee, comprising representatives of the 16 riverfront towns, as well as special interest groups. This committee, following the recommendation of the National Park Service, serves as a communications vehicle for matters relating to the Farmington River.

For further information, please contact Suzanne C. Wilkins, Executive Director, FRWA, 749 Hopmeadow Street, Simsbury 06070, phone (203) 658-4442.

The Connecticut River

by

Denise Schlener
Regional Director

Connecticut River Watershed Council

THE CONNECTICUT RIVER IS THE LONGEST and largest river in New England, originating from a series of lakes in northern New Hampshire and flowing 410 miles south through New Hampshire, Vermont, Massachusetts, and Connecticut, to Long Is-

land Sound. During its journey, the river drains a land area of 11,260 square miles, drops 1800 feet in altitude, and as it enters Connecticut carries an average of 10 billion gallons a day.

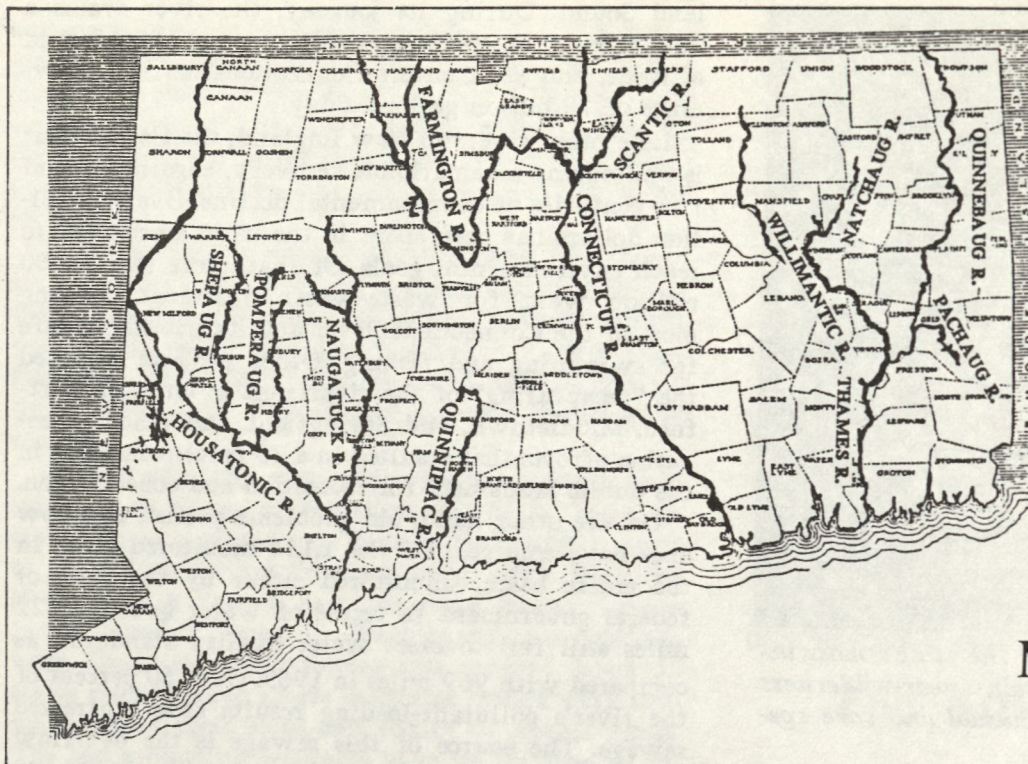
Like other rivers in New England, the Connecticut is undergoing a remarkable recovery, turning around two centuries of environmental decline. Over one billion dollars has been spent in the basin since 1970 to reach environmental goals. Of that, more than \$700 million went for waste-water treatment, making most of the Connecticut River and its tributaries safe for swimming and fishing. Other projects included the "recapturing" of the riverfront in cities of Hartford, Middletown, and Springfield, and land conservation efforts that resulted in a 30 percent increase in the public lands held for recreation and conservation.

On the other hand, old problems persist, and new ones have emerged. Of the 1,134 monitored miles in the entire basin, (monitored either by the state or federal government in terms of water quality) 522 miles still fail to meet water quality standards, as compared with 969 miles in 1969. Over 50 percent of the river's pollutant-loading results from untreated sewage. The source of this sewage is the overflow from combined sanitary and storm sewers during periods of precipitation or run-off. The presence of combined sewer overflows from Holyoke to south of Middletown prevents the river from being safely used for contact recreation, such as swimming. The cost of correcting the Hartford problem alone is estimated to be between \$200 million and \$1 billion.

A diversion of the Connecticut River to Boston via the Quabbin Reservoir continues to be a threat. Despite opposition in Connecticut and western Massachusetts, the Massachusetts Water Resources Authority — the agency charged with supplying eastern Massachusetts with water — recently decided to postpone a decision on the river diversion for at least three years. They did not, however, eliminate it from their options. Meanwhile, communities within the basin are increasingly looking toward the Connecticut and its tributaries as a source of water for a growing population.

Improving water quality in the basin and ensuring adequate water quantity are major priorities for the Connecticut River Watershed Council, a non-profit, membership-supported organization founded in 1952. For example, the Connecticut regional office of the Council is working closely with the Hartford Metropolitan District Commission, their consultants, and the DEP on a plan to eliminate combined sewer overflows into the river.

In addition to these major issues, there are many smaller proposals and issues which may cumulatively have a significant impact. This, coupled with the basin's size and its diversity — geographic, economic, and demographic — led the Council to establish regional offices in the late 1970s and early 1980s in New Hampshire and in Hartford, Connecticut. in addition



Major Rivers of Connecticut

to maintaining a headquarters in Easthampton, Massachusetts. In the upper valley states of Vermont and New Hampshire, a major focus is the protection of pristine headwater streams from problems caused by second home development. In the lower valley, the Council has begun work with rapidly-developing towns in the Salmon River watershed to identify and protect natural resources.

The basin-wide perspective the Council brings to decision-making is unique in the watershed. The Connecticut River Watershed Council is the only organization, public or private, which addresses land and water issues on a four-state basis. Numerous groups, like the Connecticut River Assembly, the Connecticut River Gateway Commission, and land trusts, are also playing vital roles on a local level.

It is through the efforts of these organizations, governments, and citizens, that the Connecticut River and its tributaries have become important regional resources again. In the face of increasing pressure on the lands and water of the basin, these efforts must be maintained and increased.

For further information, write CRWC, 103 Constitution Plaza, Hartford 06103, or phone (203) 277-6914.

The Thames River

by
Carole S. Clark
Thames River Watershed Association

APPROXIMATELY ONE FOURTH OF THE LAND AREA of Connecticut is Thames River

watershed. It is 1,478 square miles of rivers and brooks, woodlands and meadows, high ridges and wetlands that extends into Massachusetts and Rhode Island. Forty-three towns are within this watershed with the most heavily developed areas centering around Norwich, New London, and Groton. The Yantic, Shetucket, Quinebaug, Hop, Little, Willimantic, Natchaug, Moosup, French, and Fivemile Rivers are the major tributaries to the Thames River.

The Thames is a 12-mile waterway stretching between Norwich, New London, and Groton. Approximately 50 municipal and industrial discharges flow into the river within this 12-mile stretch.

Because the Thames is tidal, it is best defined as a tidal estuary rather than a river. This means that the industrial and municipal discharges do not flow directly into Long Island Sound, but slosh back and forth twice a day with the tides that flow all the way up to Norwich. The dissolved oxygen concentration falls to nearly zero during certain times in the summer in the bottom water of the Norwich turning basin. "Nothing at all lives in the muck at the bottom of this river," says Micky Weiss, Project Oceanology Director.

Despite intensive "human use," extensive natural areas exist about half-way between New London and Norwich, including Fort Shantok and Stoddard State Parks, and the Poquetanuck Cove bird sanctuary. This sizable open space attracts a significant but possibly declining population of great blue herons, snow egrets, ospreys, kingfishers, ducks, and geese. This fall, a peregrine falcon was sighted. Eagles are often sighted in the area. Wild rice plants line the shores, and the co-champion white oak for the state, with its noble

95-foot spread, graces this fragile natural kingdom.

In the summer of 1985, the Thames River Watershed Association, a private, non-profit organization, incorporated to preserve, protect, and restore this vital water resource. The TRWA has recently addressed the issues of the cogeneration plants in Montville and New London, those proposed by Federal Paperboard and Pfizer, and the proposed incinerators at Preston and Lisbon and the Groton outfall. In an attempt to restore anadromous fish to the Thames and its tributaries, a fish passage will be constructed at the Greenville Dam. The Oneco Dam at Sprague should also have one. At the request of the TRWA, the DEP investigated a hazardous waste site at Dow Chemical. This site may qualify for the EPA Superfund List. Federal Paperboard will have to clean up its discharge into the Little River and Versailles Pond.

This spring, a forum for dischargers will be hosted by the TRWA and will feature speakers from the DEP and other local experts on the Thames River and Long Island Sound. The Thames River Cleanup Day is scheduled for Saturday, June 20. For additional information please contact Ron Whiteley, president TRWA, P.O. Box 232, Ledyard, CT 06339.

The Housatonic River

by
Lynn Werner
Valley Watch Director
Housatonic Valley Association

THE HOUSATONIC RIVER, ORIGINATING IN PITTSFIELD, Massachusetts, winds south for 132 miles to its mouth at Stratford, on Long Island

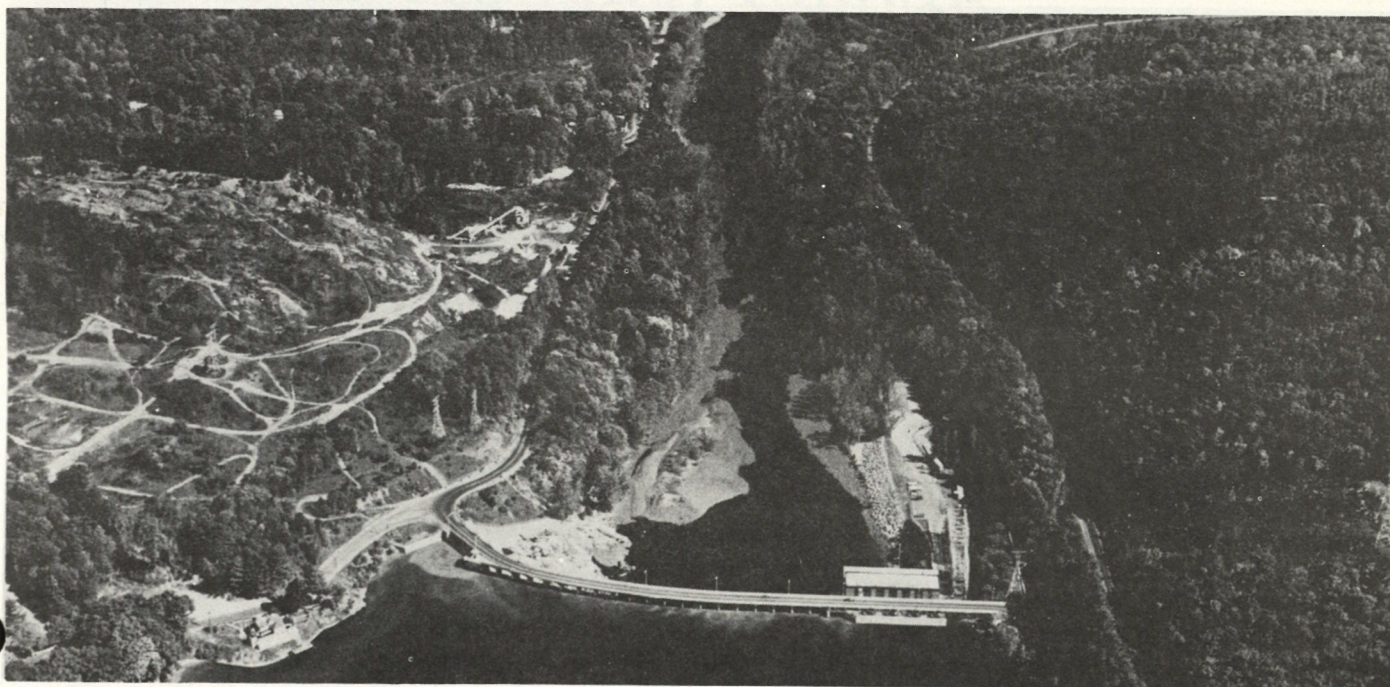
Sound. It drains a watershed of nearly 2,000 square miles.

The river basin landscape is varied and its natural beauty draws thousands of visitors each year to the northern half of the river and to one of its major tributaries, the Shepaug-Bantam River. The banks, rock ravines, and adjacent highlands support a number of rare plant and animal species.

The Housatonic Valley has many sites of state and national significance, such as the Kent Iron Furnace, several covered bridges, vintage railroad stations, and sites where native Indians once lived.

The water quality of the Housatonic is generally good, and the river's flows are sufficient to support Class I, II, III, and IV rapids. Consequently, recreational opportunities abound, including swimming, boating, canoeing, kayaking, sculling, and fishing, as well as hiking, cross-country skiing, and camping. The Appalachian Trail runs along the river banks for five miles between Kent and Cornwall Bridge, the longest stretch of river walk between Georgia and Maine.

Much of the river valley was developed for agriculture in Colonial times. Water power from the many tributaries and streams played a prominent role in 19th century industry, and remnants of dams and mill races may still be seen today. Much of the upper part of the river in Massachusetts is still in agricultural use. Further down, in the New Milford-to-Brookfield area, tobacco farms flourished until the surge of 20th century development. To the south of Derby, industrial development, including steel mills and heavy manufacturing, characterizes the riverfront. Three dams — the Shepaug, Stevenson, and Derby, form a chain of lakes from Southbury



The Stevenson Dam on the Housatonic River. The Housatonic Valley boasts many sites of state and national historic significance. (Photo: Housatonic Valley Association)

south to Shelton. These lakes, along with Lake Candlewood, provide recreation as well as valuable hydroelectric energy resources.

While much of the Housatonic from New Milford north, together with the Shepaug-Bantan tributary, qualified for federal protection under the Wild and Scenic Rivers Act, riverside communities have opted for local planning and enforcement mechanisms to protect the rivers and streambelts in this part of the watershed. However, in 1985, some 1800 acres of river corridor between Kent and Sharon gained permanent protection through easement and acquisition by the National Park Service in its ongoing efforts to permanently protect the Appalachian Trail and its associated lands.

The Housatonic Valley Association (HVA), a citizens' non-profit organization, played a primary role in orchestrating this recent protection effort. HVA, for the past 45 years, has played a key role in addressing environmental issues in the Housatonic River basin, including water quality, waste disposal, and critical lands preservation.

While water quality in the Housatonic is usually very good, PCBs (polychlorinated biphenyls) and the presence of high levels of nutrients are cause for concern and action. For the past 10 years, HVA has been working with representatives of federal, state, and local agencies, citizens groups, and the General Electric Company to clean up the contaminated sediments in Massachusetts and Connecticut. The Lower Valley lakes are especially prone to man-made eutrophication due to high levels of phosphorus in the river system. With the urging of HVA and other groups, the DEP established phosphorus removal programs at major sewage treatment plants.

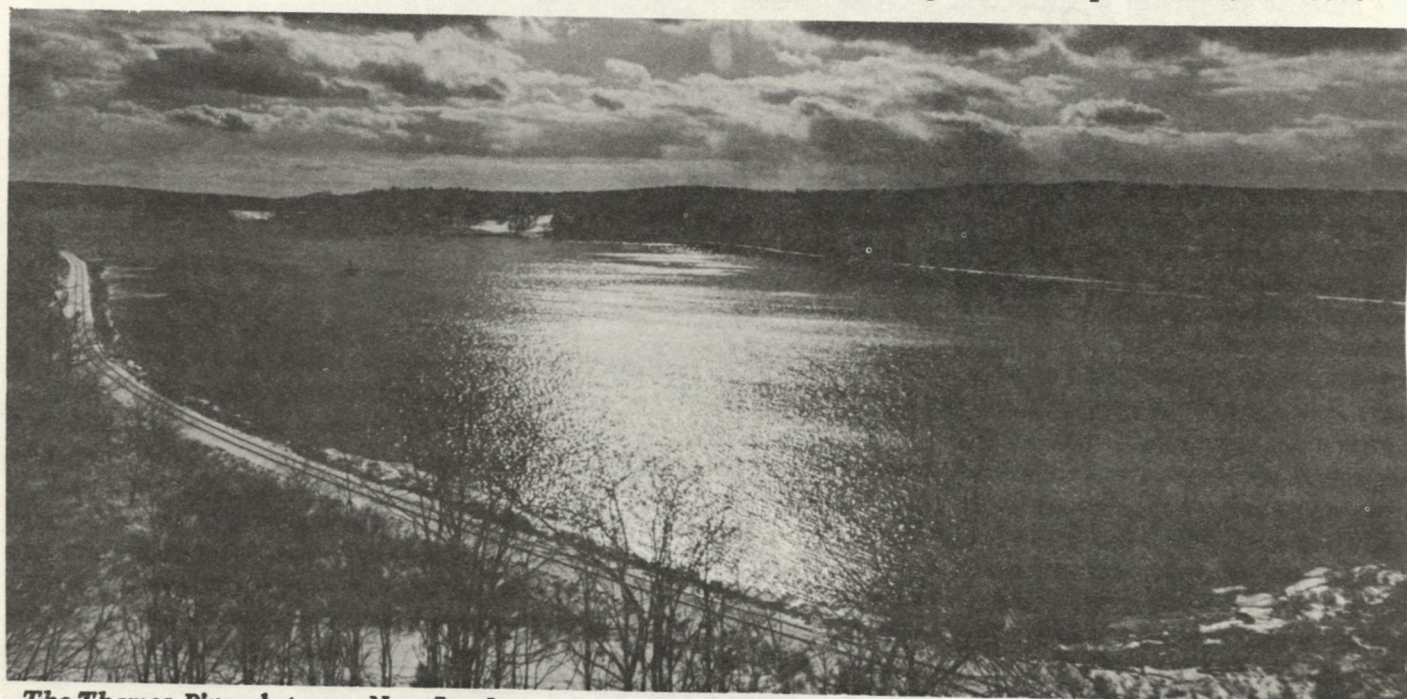
Because of the intensive residential, commercial, and industrial development in the Lower Valley, waste disposal concerns have grown. Pre-treatment at sewage treatment plants which accept industrial wastes, hazardous and non-hazardous waste storage and disposal, environmentally sound land use, wastewater discharge limits, the identification and protection of critical environment lands, all are issues which demand the attention of agencies and groups like HVA.

HVA's primary goal is land protection. HVA recently initiated a project which focuses on the townwide protection of community groundwater resources, and the need for better understanding of land use and water quality interrelationships by local land use planners and officials. The Groundwater Action Project (GAP) brings technical expertise and assistance to local community officials in identifying and protecting those lands critical to groundwater quality.

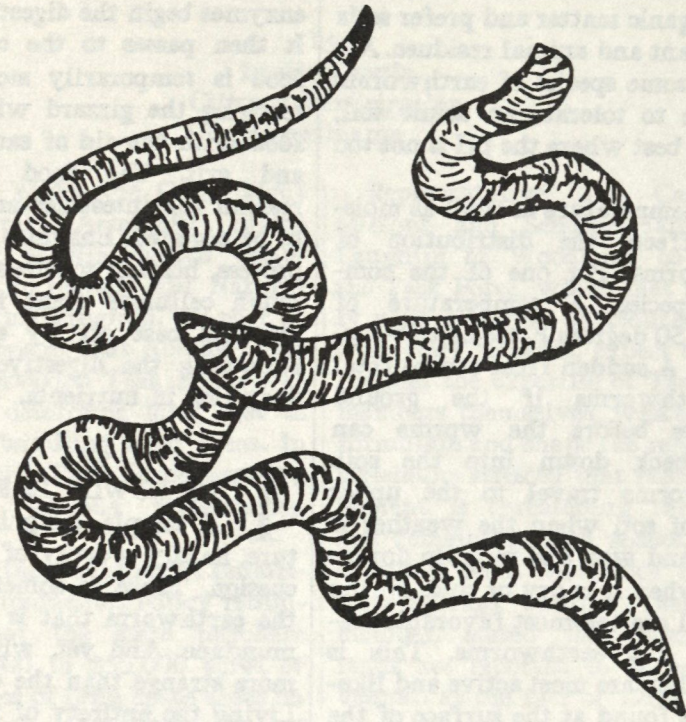
HVA's land planning service offers the same kind of expertise to landowners by identifying lands suitable for development, lands which should be protected, and the level of protection necessary. Environmentally sound community growth is certainly the key to continued enjoyment of this beautiful river valley.

The Housatonic River and its Valley give us first-rate recreational, economic and historic resources, natural beauty, and rich and diverse plant and animal life. Persons who live, work, and play there believe that only a balanced partnership of growth and conservation can protect the scenic surroundings that have too often and too long been taken for granted.

For further information, contact HVA, P.O. Box 28, Cornwall Bridge 06754, or phone (203) 672-6678. ■



The Thames River, between New London and Norwich. Because the Thames is tidal, it is best defined as a tidal estuary, rather than as a river. (Photo: Jeff Evans, Norwich Bulletin.)



Creatures from an Underground Empire

by
Penni Sharp

THE LONG, LONG STRETCH from Thanksgiving to Easter is difficult for those who enjoy gardening. While the ground is frozen and plants lie dormant, there are only the tantalizing seed catalogues to remind us of seasons to come.

Based on the number of catalogues which arrive at our house and which offer items from fancy tools to English garden benches, I have to assume that gardening has become big business. What is it that makes this hobby so popular? Perhaps it is the feeling of pride and independence that comes with stocking the larder with very fresh

produce. Or it may be the joy and triumph of growing that perfect rose or special delphinium. And, I think that part of gardening's popularity must stem from the fact that it must be pursued outdoors, slowly. Gardening cannot be hurried. Working at a garden takes time, slow, unrushed time. During that time, the gardener picks up the long, slow rhythms of nature, and has time to notice the tiny details that ordinarily slip by.

ON A WARM SPRING DAY, songbirds move about, sing-

ing, and claiming territory. Squirrels, chipmunks, rabbits, and mice also are active at this time of year. But how many of us pay attention to the animals whose entire lives are spent in the darkness within the soil? Beneath our feet lies a world teeming with life. Without these myriad creatures — some of which are wanted, some of which are most assuredly not — plant growth would not be possible. Animals numbering in the trillions live in a square yard of good garden soil.

Peter Farb, in his book, *Living Earth*, put it this way: "We live on the rooftops of a hidden world. Be-

neath the soil surface lies a land of fascination, and also of mysteries, for much of man's wonder about life itself has been connected with the soil. It is populated by strange creatures who have found ways to survive in a world without sunlight, an empire whose boundaries are fixed by earthen walls."

Many factors contribute to the abundance and types of animals inhabiting the soil. Climate and vegetation have a great influence upon the organisms likely to be found; there are differences between the animals beneath a humid forest and those beneath a grassland or desert. The temperature, degree of acidity, and moisture content of soil are also determining factors.

Of this vast array of animals, including the micro-fauna, the ordinary earthworm is among the most important. In many soils, earthworms constitute more than half the weight of animal life (biomass). The weight of earthworms can range from half a ton per acre to as much as 10 tons in a particularly rich soil.

One of the most critical roles that earthworms play is that of soil-mixer. They bring soil from lower levels to the surface. They churn the soil by dragging quantities of un-decomposed plant matter, such as leaves and grasses, into their burrows. The holes that earthworms leave in the soil increase aeration and promote good drainage. All of this improves the texture of the soil.

Earthworms also enhance soil fertility by passing enormous quantities of soil through their bodies. This can amount to as much as 15 tons of dry earth per acre in a year. As this material passes through the earthworm, it becomes enriched by the action of digestive enzymes.

EARTHWORMS prefer a moist, well-aerated habitat. They are more numerous in upland

soils with high moisture capacity than in sterile, sandy, or poorly-drained lowland soils. They feed upon organic matter and prefer soils with plant and animal residues. Although some species of earthworms are able to tolerate an acidic soil, most do best where the pH is not too low.

Soil temperature as well as moisture affects the distribution of earthworms. For one of the common species, a temperature of around 50 degrees F. seems to be optimum. A sudden frost can be fatal to earthworms if the ground refreezes before the worms can move back down into the soil. Earthworms travel to the upper levels of soil when the weather is warm and wet, and migrate downward when it is dry or cold. Spring and fall are the most favorable seasons for earthworms. This is when they are most active and likely to be found at the surface of the ground.

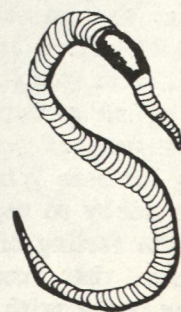
YOU MAY WONDER how earthworms pass the winter months. They burrow downward and stay well below the frost line. There, large numbers of them gather together in intertwined balls. This closeness helps them to conserve moisture.

Earthworms are well-adapted to the subterranean life. Able to either stretch to a great length or compress their bodies, they move through tight spaces, slowly nudging their way around rocks, roots, and other obstacles. Although they lack eyes, earthworms can detect the presence of light with special receptors. They are able to sense chemical changes through the skin. The thin skin must remain moist in order to absorb oxygen and release carbon dioxide.

The earthworm feeds upon dead plant and animal material. As soon as food enters the mouth, it is drawn into the pharynx by a strong

pumping action where it is mixed with saliva. From the pharynx, food travels to the esophagus where enzymes begin the digestive process. It then passes to the crop where food is temporarily stored before reaching the gizzard which grinds food with the aid of sand particles and grit. The food eventually reaches the intestines and is ready to be digested. Enzymes aid in this process, helping to break down the tough cellulose plant fibers. This material cast off by earthworms following the digestive process is very rich in nutrients.

THE LOWLY EARTHWORM. A simple, insignificant creature, hardly worthy of serious discussion. There is something about the earthworm that is so, well, so mundane. And yet, what could be more strange than the earthworm? Living the entirety of its existence under the ground, away from the sun, away from the central fact of our solar system, this bizarre creature, without what we usually understand as sensory apparatus, might easily have come from another galaxy. Living in darkness and eternal silence, in a world without up or down, only vast, relentless pressure, the earthworm demonstrates once again that if we look closely at the familiar, we will usually find something very strange. The earthworm gives us one more reason to take a little time to look at the endlessly fascinating world of nature. ■



For Your Information

Preserving Open Space

by
Leslie Lewis
Citizens' Participation
Coordinator

LAST YEAR the Connecticut General Assembly passed Public Act 86-406, which established the Recreation and Natural Heritage Trust Program. As part of the provisions of that Act, an Open Space Preservation Task Force was formed to determine how best to save our dwindling open areas. In February, the Task Force issued a report on various preservation strategies.

In 1970, the Governor's Committee on Environmental Policy recommended that the state purchase from 325,000 to 355,000 acres of various types of open space areas on or before January of 1980. As of 1985, however, the state only owned 206,048 acres. The Task Force which comprises legislators, Office of Policy and Management and DEP officials, and environmental groups, endorsed a state goal of protecting an additional 100,000 acres of open space by the year 2000.

The cornerstone of the plan is a \$25 million revolving fund which would be ongoing for both acquisition and development of open space, excluding farmlands. No new taxes would be initiated to develop this fund, but it would need a constitutional amendment to protect the fund and accomplish its purpose.

Representative T.J. Casey of Milford and Senator James McLaughlin of Woodbury co-chaired the Task Force, which met regularly over a period of months. They cited staff research, expert testimony, and the expertise of Task Force members themselves, which helped formulate and shape the report. The legislators stressed that rapid development is threatening the state's last remaining open spaces. Representative John Mordasky of Stafford Springs, another Task Force member, stated that open space lands are reported to be being developed at the rate of 1200 to 1500 acres per year.

LANDS TO BE PURCHASED under the program include: state forest lands, significant ridge tops, state park lands, and coastal and inland wetlands. The purchases would represent a major public/private sector partnership, as some matching funds would be required from either private sources, municipalities, or federal matching programs. The report recommends that the existing trust fund be modified to include more public contributions while leveraging private capital wherever possible.

Not only state legislators support the findings of this new report. The

Connecticut Chapter of The Nature Conservancy, a major environmental organization dedicated to preserving ecologically significant land, has endorsed the plan as well. Leslie Corey, executive director of TNC's Connecticut Chapter, summed up his group's feelings, saying, "The time to act is now."

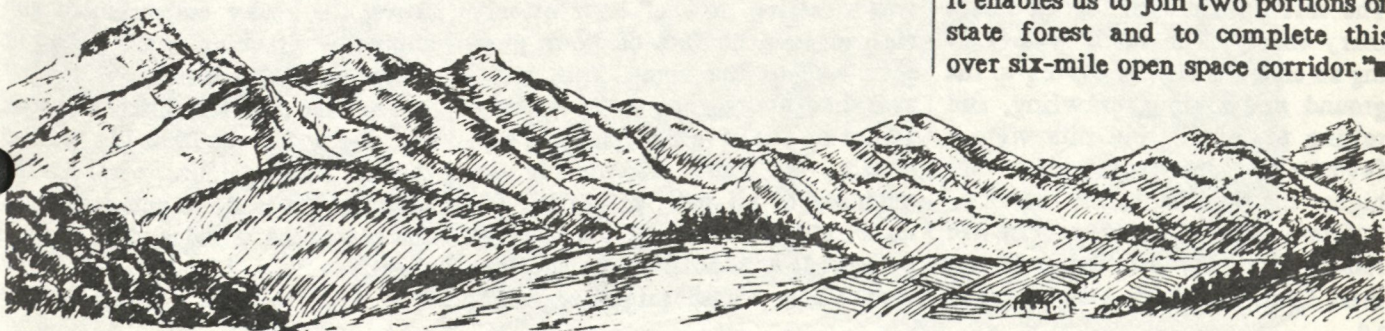
For further information, contact the Environment Committee of the General Assembly, Room W-4, Capitol Annex, Hartford 06106 or call 240-0440.

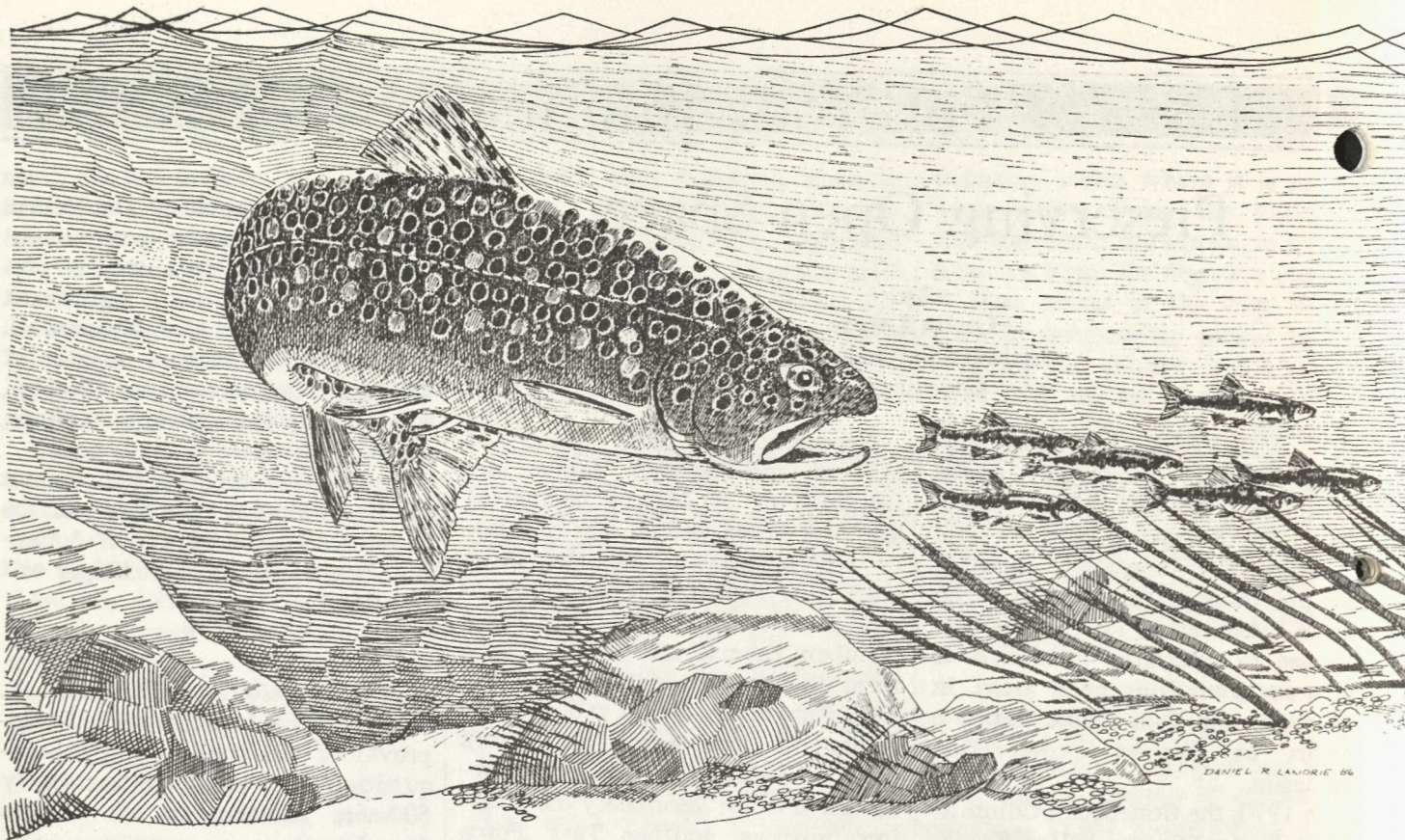
GOVERNOR WILLIAM A. O'NEILL announced the approval of the bonding for the acquisition of an approximately 500-acre addition to the Tunxis State Forest.

The state's acquisition of this parcel, the Grant and Stoner property, will effectively complete a corridor of state-owned open land, bordering Metropolitan District Commission (MDC) land, which runs from Roaring Brook to the Massachusetts line.

The property, in the southern section of East Hartland east of the Barkhamsted Reservoir, will be acquired from Robert M. Grant and the trustees of Clara J. Stoner for \$600,000. It is bordered on the north and south by the Tunxis State Forest and on the west by the Barkhamsted Reservoir.

"With the pace of development what it is today in Connecticut," said Governor O'Neill, "acquiring such a large block of land is a rare opportunity . . . even more so since it enables us to join two portions of state forest and to complete this over six-mile open space corridor."





Trout Stream

Story
by
Donald F. Lee

Illustrations
by
Daniel R. Landrie

REMEMBER what a great excuse fishing was? Chores, studies, work were all put on hold while fishing prevailed. The words "Gone Fishing" explained everything.

In years past, fishing was my excuse — not to get out of chores, though. I would have had to come back with the evidence of a successful fishing expedition, and that rarely happened. I could count on two hands, at most, the number of fish that I've caught. No, instead fishing was my excuse to get out there, to experience, to embrace the land — a re-acquainting. Just like, as a kid, playing war was an excuse. The thrill wasn't killing an imaginary enemy. The thrill was eluding an enemy's fire by diving to the ground and sliding, crawling, and rolling to cover. Sand pits were a favorite spot for staging this — the higher the sand bank, the better.

There was a favorite spot for fishing, too. My stepdad took me there first. The drive was long and

a little complicated, and when you finally got there, you felt surprise. The feeling, oddly, did not diminish over time. It was constant. Every trip ended that way. Surprise that you found the place again. Surprise that it was still there.

The sense of anticipation increased on the long walk from the car. Railroad tracks and trestles were the only deviation from the rough and hilly natural terrain. Then the river came into view. The water looked fast and forbidding from high up on the railroad bridge. But when you descended the steep bank and got close, the river was no longer threatening. Rather, there was a feeling now of how utterly meaningless the fact of your presence was to the river. You, however, had to continue to be actively aware of the river. Navigating upstream was tricky, fascinating, demanding of all your attention. Almost every bend of the river presented a beautiful, mysterious spot where a fish might or might

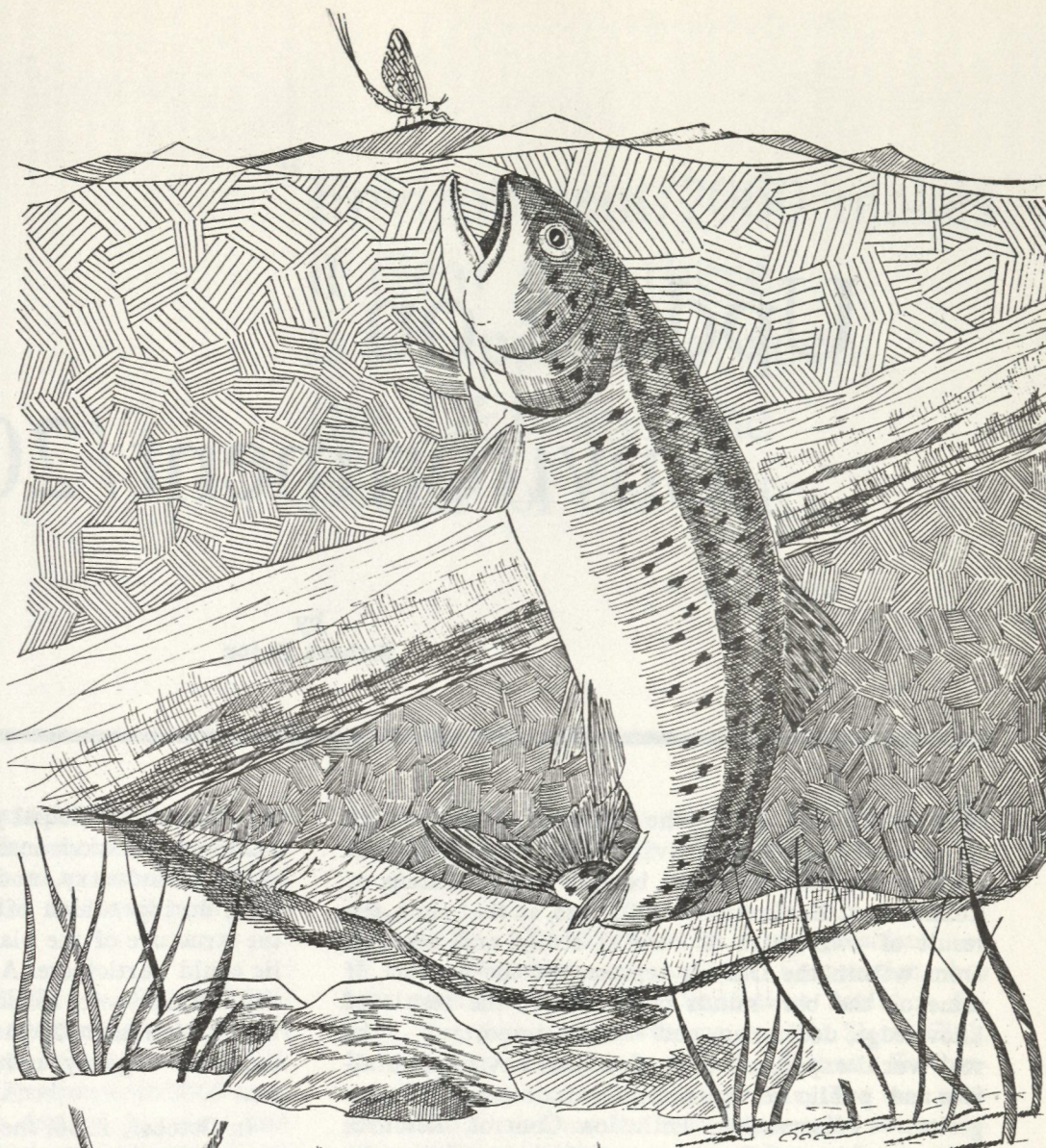
not be.

At one point, a branch stream joined the river. It wasn't as wide, but every bit as inviting. Following this branch upstream, you came to a deep pool at the base of a waterfall. My stepfather told me that the Indians used to dive from a rock ledge into the pool. In my mind's eye, I could see that happening. It was too lovely a place for that not to have happened.

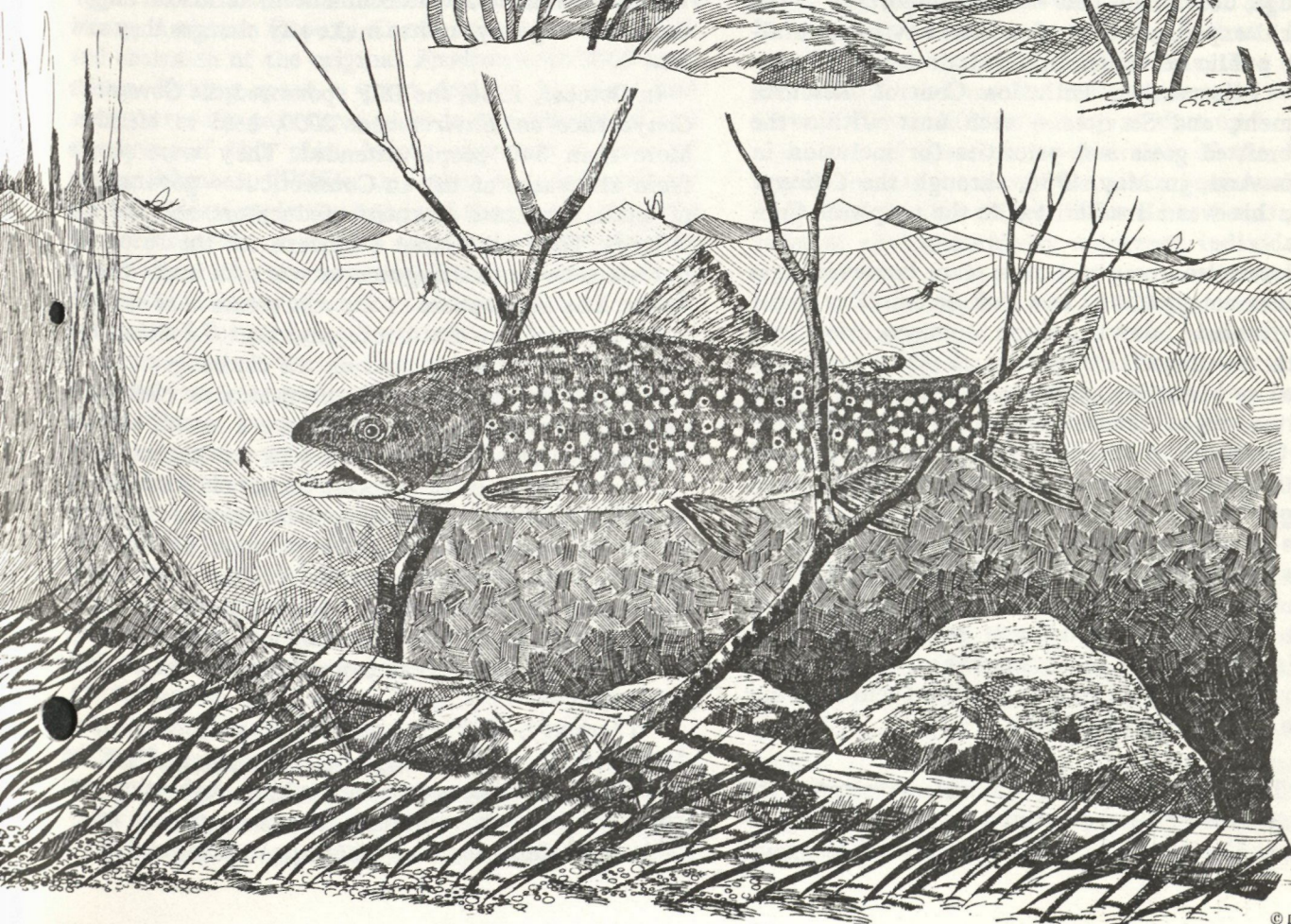
All the times I have been to the river have been satisfying. Once I caught a fish — a 12-inch rainbow trout. I was high up on the railroad bridge and had let my line out far downstream. My stepfather went down the rocky embankment and slipped — cracking a rib — but he netted the fish for me.

The last time I went there, I took my dog. I did not fish. We walked the old fishing route together. The surprise, the built-in anticipation of the place, the wonder, was all still there.

BROWN TROUT
(*salmo trutta*)



RAINBOW TROUT
(*salmo gairdnerii*)



© DAN LANDRIE '86

BROOK TROUT
(*Salvelinus fontinalis*)

Update on Environment/2000

by
Robert Paier

IN MAY OF 1986, the *Citizens' Bulletin* first presented the DEP's environmental strategies and goals to the year 2000 and beyond to the citizens of Connecticut. *Environment/2000* was, at that time, the result of two years of careful study and research from within the DEP. It represented the product of some of the best minds of the DEP, the result of knowledge, dedication, and — most important — the real-world experience of professional environmentalists and public servants. Under four separate categories — Preservation, Pollution Control, Resource Management, and Services — each unit within the DEP submitted goals and priorities for inclusion in the plan. And, in May, 1986, through the *Citizens' Bulletin*, this was all submitted to the people of Connecticut.

What was unique about this plan, however, was that it was not presented as a *fait accompli*, as something handed down from above, in the "we-talk-you-listen" tradition. Rather, it was presented as a starting point from which the people themselves might determine the environmental future of Connecticut. The DEP presented the people of Connecticut with a great opportunity and a great challenge.

"This is what we think must be done," said the officials of the DEP. "What do you, the concerned and environmentally aware citizens of Connecticut, think must be done? Tell us what you want. Tell us how you think things can be accomplished. Let us work together to ensure a clean and healthy future for our children and our grandchildren."

AND SO BEGAN THE PROCESS of bringing the plan before the people and inspiring their participation. Copies of the plan were sent throughout

the state, to municipal governments, town boards and commissions, environmental groups, and leaders in business, industry, and education. Workshops were held, during which officials from the DEP outlined the structure of the plan and explained how the public could participate. A questionnaire was circulated and citizens were asked to evaluate all topics within the *Environment/2000* document in terms of importance and urgency, and to make any changes they saw fit.

In October, 1986, the DEP sponsored the *Governor's Conference on Environment/2000*, held in Meriden. More than 340 people attended. They were people from all walks of life in Connecticut — government officials, corporate executives, educators, and average citizens. They all shared a concern for the future of our state and a willingness to work to make things better. The atmosphere at the conference was electric. It became clear at that conference that the citizens of the state had indeed picked up the challenge.

Results of the returned questionnaires were collated. Special areas of concern were noted, and an advisory committee of 70 members was chosen.

The next step in the process consisted of a series of meetings held in November and December, co-chaired by four members of the advisory committee. In these meetings the *Environment/2000* document was held up to most intense scrutiny. It began to undergo transformation from a DEP document to a true expression of the wishes and aspirations of the citizens of Connecticut.

In January, 1987, a two-day workshop was held at Harkness Memorial State Park in Waterford. Here, the results of long discussions, reworking, rephrasing, and compromise were combined into one complete draft. This workshop was the final stage in determining the

“Environment/2000 makes it clear that there is a rapport between the DEP and the people of the state.”

Nancy Kriz

content of the new *Environment/2000* document, and it was a challenging time. It required cooperation from all members, a willingness to see things from new perspectives, and a spirit of trust and good will.

THERE HAS NEVER BEEN A PLAN LIKE THIS in the state of Connecticut,” said Robert Moore, Assistant Deputy Commissioner of the DEP, and chairman of the original *Environment/2000* committee. Having spent a great deal of his time and energy over the past three years in the conception and nurturing of this plan, Moore expresses a sense of accomplishment. “While this plan was initiated by the DEP, it is now in the hands of the people. It has its own momentum now. The members of the advisory committee, who are a balanced cross-section of Connecticut’s business, education, and industry, are to be commended for carrying on this work.”

Moore stressed that an atmosphere of trust was absolutely necessary for the plan to inspire commitment. “People have gone into this seriously because they understand that they and DEP are working toward the same goals.”

Moore also indicated that *Environment/2000* is, in fact, “risky” for the DEP. “When goals are set by people within the DEP, we are able to work within what we know to be our limitations. By letting these goals be set by the citizens, we are opening things up. We are committing ourselves to goals which others are setting for us. This can be a risky proposition. It requires mutual trust.”

The establishment of this trust was the key element, according to Moore. “The governor’s endorsement was important. The governor said, in effect, ‘You, the people, make this real, make this better, and

we will accept what you tell us.’ It was necessary to have trust to bring that to actuality.”

PHILIP LEAVENWORTH, vice-president of the Mountain International Corporation, has been associated with the Connecticut Audubon Society, The Nature Conservancy, and the Sierra Club. “I realized,” said Leavenworth, “when *Environment/2000* was first put out last year, that was now now time for me and the environmentally active citizens of Connecticut to put up or shut up.”

As one of the four co-chairmen of the advisory committee, Leavenworth has given generously of his own time to this effort. “There has been a diverse cadre of environmentally concerned individuals and organizations in the state, but no overall coordination. I saw that the *Environment/2000* plan could encompass all those people on a long-term, productive basis.”

Leavenworth stated that dedicated and intelligent people “have hammered out something which is workable and agreeable to all. Connecticut is our home and the people of Connecticut have shown they are willing to do what is necessary to keep their home from falling apart. *Environment/2000* is a means of doing that.”

The plan, according to Leavenworth, must be adopted by the state as being the single plan for all. “This won’t work if it is just another set of guidelines. It must receive full support of the state government.” Leavenworth feels that the plan has an excellent potential for gaining that wide support. “It would be terrible,” he said, “to let this great energy and momentum dissipate now.”

Leavenworth expressed a sense of excitement in being able to work with the best environmental



At Harkness Memorial State Park, the Environment/2000 document became a true expression of the will of the people.

minds in Connecticut, and the fact that these minds have been brought into the government process. "This plan is the perfect vehicle for bringing the whole state together," said Leavenworth.

E NVIRONMENT/2000 represents the best effort that the citizens of Connecticut can make toward a cleaner and better environment," said Denise Schlener, co-chairman of the advisory group and regional director of the Connecticut River Watershed Council. "It will require continued review and update. As much as we have already accomplished, the hard part is yet to come. I think everyone involved has put forth complete effort and commitment. I don't think we could have done any better."

The people involved in the project demonstrated a willingness to cooperate, said Schlener. They worked together, reached a consensus, and are now working toward something they all can believe in. A harmonious group, according to Schlener, can accomplish a great deal.

"My respect for the DEP staff involved in this project has been reaffirmed," said Schlener. "It is clear that they are capable and caring public servants."

Proud of what has already been accomplished in *Environment/2000*, Schlener feels it is critical that we do not become complacent. "People have awakened to the importance of the environment," said Schlener. "Now we have to keep awake."

D R. WILLIAM RENFRO is the director of environmental programs at Northeast Utilities,

and co-chairman of the *Environment/2000* advisory committee. He was impressed that "the DEP has been able to enlist the willing and intense participation of the leading environmental people in the state."

Renfro feels that this plan is a "bold step" on the DEP's part, and a great opportunity for the public to participate in setting environmental goals. "There is now a climate of productivity and interaction between diverse parts of the state, industry as well as private conservation groups. The plan can be an excellent environmental tool."

N ANCY KRIZ, president of the Connecticut Association of Conservation and Inland Wetland Commissions (CACIWC), serves on the *Environment/2000* advisory committee. "The present document has been gone over with a fine-toothed comb," said Kriz. "It can now be said to represent the will of the people of Connecticut."

Kriz made particular mention of the commitment of the DEP. "The DEP was found to be receptive and understanding. The effort will have been successful if only for having demonstrated a rapport between the DEP and people of the state. It is clear that the state wants to work with the public."

J AMES DEWITT is president of the Connecticut Association of Metal Finishers and, like Dr. William Renfro of Northeast Utilities, speaks from the perspective of the state's industrial community on the *Environment/2000* advisory committee. "While Connecticut industry does operate with its own special requirements, it is also very much concerned with the

“People have awakened to the importance of the environment. Now we have to keep awake.”

Denise Schlener

same issues of health, safety, and cleanliness as private citizens are. Industry shares the same concern for future generations.”

Dewitt feels the interaction between the industrial community and exclusively environmental organizations presents a unique opportunity for drawing people together. “I am very impressed with the high quality of the people involved in *Environment/2000*. They are very well-informed and willing to listen to each others’ ideas. Productive working relationships have been formed as a result of the intense workshops.”

The next big steps for *Environment/2000* that Dewitt sees will involve obtaining the endorsement of different groups within the state, and the backing of the governor’s office and the state Legislature. After that, says Dewitt, the economic factors — factors which have so far been deliberately not addressed by the document — will require consideration.

As a member of the “regulated community,” Dewitt is encouraged by the spirit of cooperation and mutual respect he sees in working on *Environment/2000*.

LUCAS HELD is a reporter for *The Middletown Press*. He became aware of the *Environment/2000* plan in June, 1986. “I wrote a very detailed piece on it,” says Held. “I hope that some people became involved as a result.”

While Held is encouraged by the frank and honest exchange of ideas and the willingness to see issues from all sides, he feels the hard work is yet to come. “The real power in Connecticut, where things happen or do not happen, is on the local level. There is the old

Yankee tradition here of the town meeting. *Environment/2000* will have to be expressed in such a way as to reach the individual private citizen. That is where the power in the state lies. The citizens of this state will not accept a document which simply tells them what to do. In Connecticut, the towns and the townspeople cherish their independence.”

Held feels that, in fact, *Environment/2000* is moving correctly in this direction. For example, said Held, rather than using environmental education to put forward a specific policy or program, the expressed goal is to provide enough information so that citizens can make appropriate decisions on their own. It is this attitude of mutual respect between the state and the people of the state which must be maintained in order to ensure the success of *Environment/2000*.

OF GREAT IMPORTANCE for the ultimate success of this plan is that a number of environmental organizations within the state have already formally adopted it as being their plan as well. This can only increase the momentum that is building behind *Environment/2000*. But, of course, the work is far from over. In order to bring the plan before an even wider audience, a complete and finalized version of the document is now being worked on. This is expected to be published in book form by June of this year.

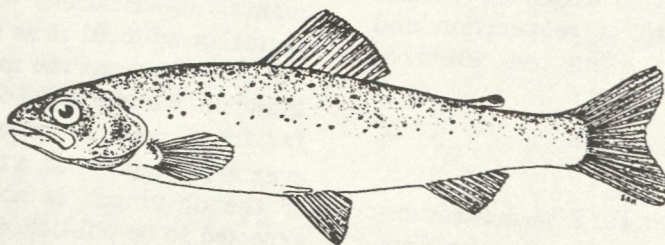
As Robert Moore has said, there has never been a plan like this in Connecticut. The citizens of Connecticut are well-informed, concerned, and willing to give of themselves to build a better future. Through *Environment/2000*, through the cooperation and mutual respect that it has inspired, the people may have found a way to realize that future.



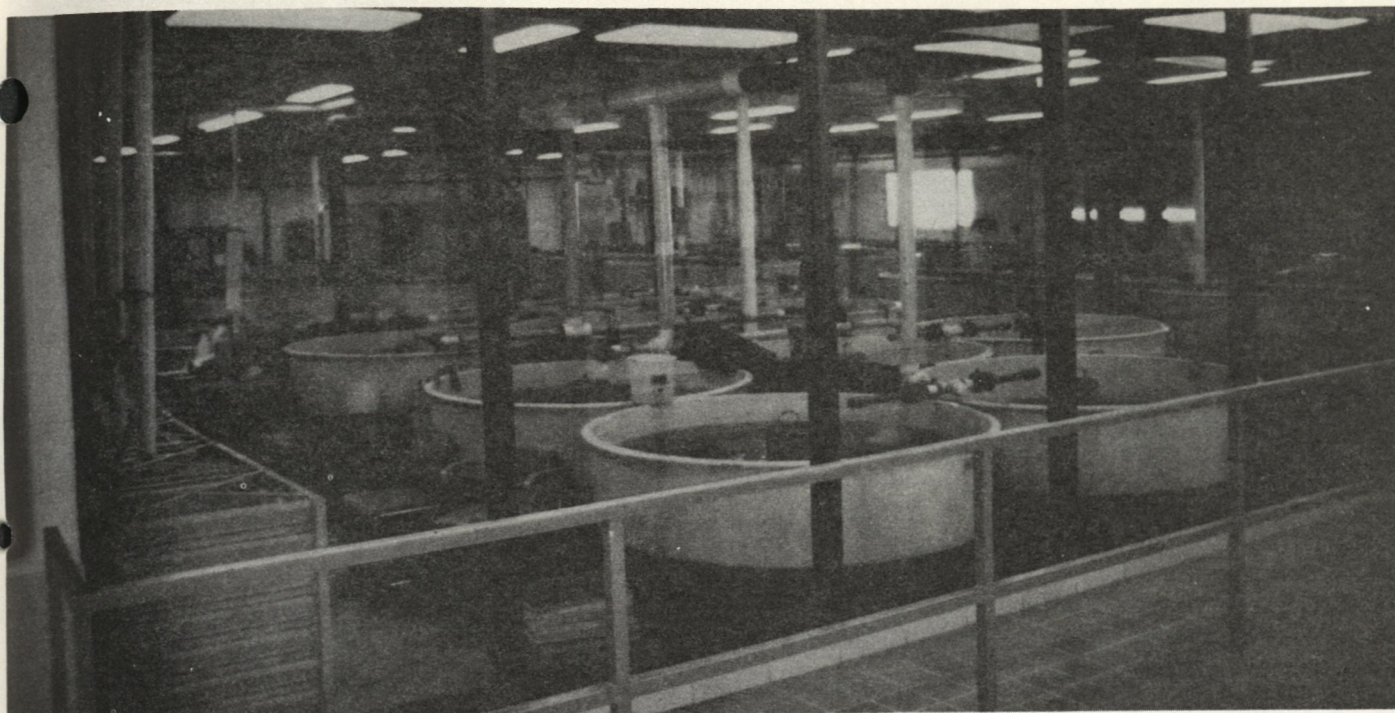
At Quinebaug Hatchery, life begins for the fish in incubator trays. At any given time, the hatchery can handle million and a half rainbow, brook, and brown trout in varying stages of development. (Photos: Robert Paler)

How the Fish Come to the Rivers

by
Kim Nauer
Environmental Intern



THE ESTABLISHMENT AND PROMOTION of fish breeding and hatcheries began in the United States in 1870. At that time, U.S. Fishing Bureau Commissioners William M. Hudson and Robert G. Pike enthusiastically described a science that was new in America, but familiar in Europe. By manually fertilizing the eggs and then providing a safe place for incubation and growth, fish had been bred and raised with high success. A survival rate of 99 percent and a food source that would be cheap and nearly inexhaustible was envisioned. "The extent to which the cultivation of fish may be carried seems without limit," wrote Hudson and Pike.



Fish arrive at the circular pools inside the hatchery as translucent wisps, and leave as three-inch-long mini-trout.

MICHAEL VERNESONI is supervisor of fish culture at the DEP's Bureau of Fisheries. His areas of responsibility include the trout hatcheries at Burlington and Quinebaug Valley in Plainfield, and the Atlantic salmon hatchery at Kensington. Established in 1971, Quinebaug Valley Hatchery is one of the largest and most modern fish hatcheries in the northeast. Its annual production is 500,000 to 600,000 nine- to 12-inch brook, brown, and rainbow trout.

Vernesoni pointed down into a 20-foot circular tank swarming with sleek rainbow trout. Some of the fish had white curved "kipes" protruding from their mouths. These are the males; the kipes appear in the spring and are used to induce the females to mate. "But that's not allowed to happen," says Vernesoni. "That's the hatchery's job."

At Quinebaug, Vernesoni and his staff nurture the fish from conception to young adulthood and then release them into the lakes and streams. The "put-and-take" program, under the direction of the DEP's Bureau of Fisheries, produces about 800,000 young adult trout. Another 700,000 smaller trout and salmon are produced for various other fish management programs. Of this total, Vernesoni estimated over 80 percent are caught by Connecticut anglers each season.

The kiped rainbows are part of the hatchery's breeding stock. They are grown at the hatchery and then kept as adults to provide the eggs and milt (fish sperm) necessary for producing future generations. The fish do not mate in their tanks, Vernesoni said, because the fish are milked of their gametes as soon as they are produced. This is the first step in Quinebaug's tightly-controlled breeding process.

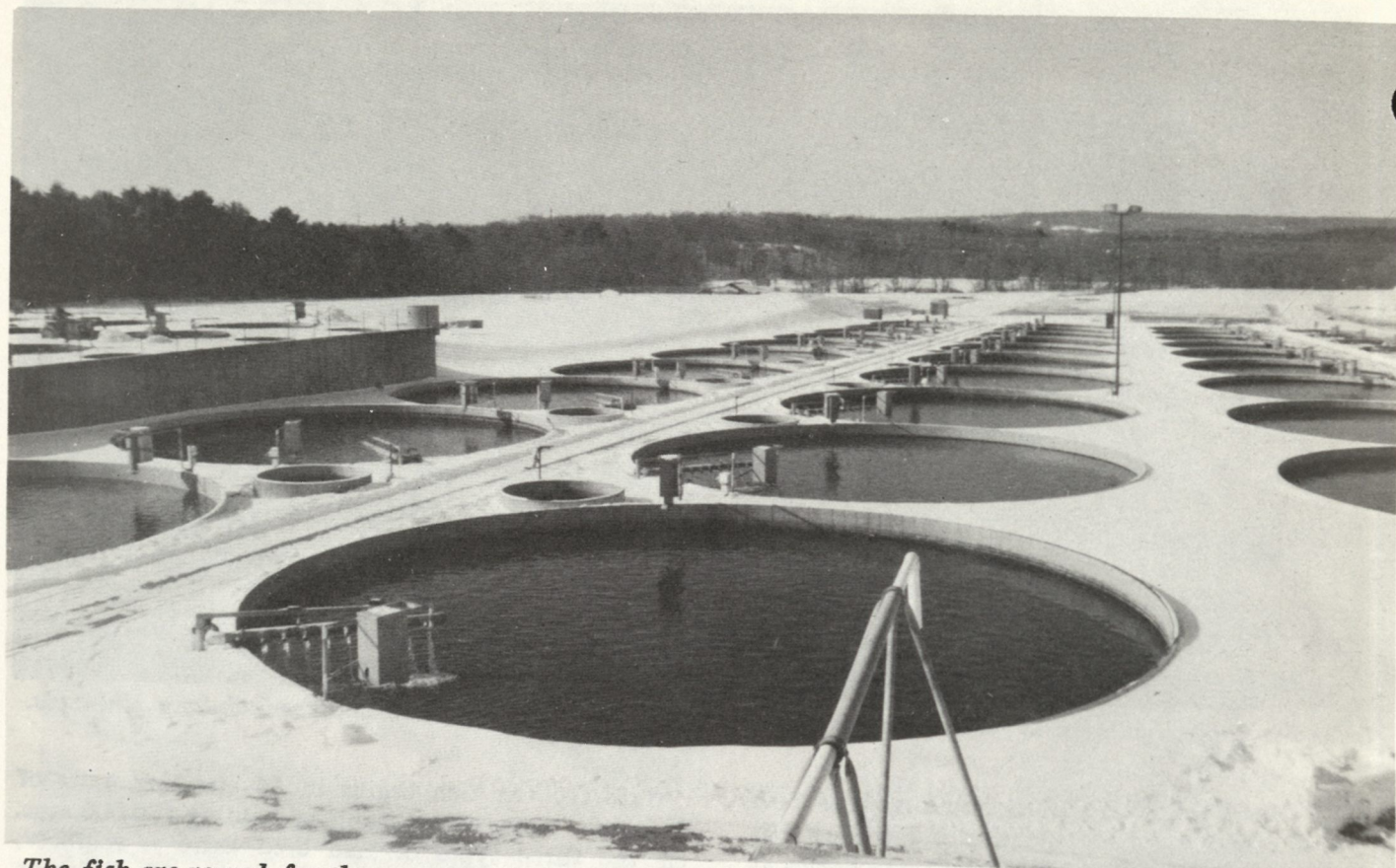
Life for the fish begins in 15 standing units of incubator trays, each capable of holding 100,000 eggs. Of the three types of fish bred there — rainbow, brown, and brook trout — there are 10 different strains, each reaching maturity at different times. Staff watch them and move them out as soon as they are capable of living in the bigger pools, and then refill the trays with new batches of fertilized eggs. "We can have a million and a half going at a time, and we can handle up to three and a half million in a year," Vernesoni said. Quinebaug produces and incubates all its own eggs and provides nearly all the eggs for the Burlington hatchery.

Once the fertilized eggs have been placed in the incubators, they cannot be touched for 22 days; any shock may kill the embryos. After this period, they develop into the "eyed stage." At this point they look like large tapioca with spots and can be moved with relatively little danger.

Soon they hatch, developing tails and fins. They are called "sac fry" at this point because they derive nutrition from a sac attached to their bellies. A few days later, they are moved into a six-foot-diameter, 27-inch-deep circular pool.

As soon as their sacs are absorbed, the fish begin swimming to the top in search of food. Their feeding program begins with salt-grain-sized pellets of high protein fish meal. They arrive in the tank as translucent wisps and leave as three-inch-long mini-trout.

Then the fish are moved outside into crowded 20-foot-diameter tanks. They are reared, for the most part, in this area. "We rear them here because it's a smaller area to take care of," Vernesoni said. The fish are moved to the center's large, 50-foot tanks when



The fish are reared for the most part in 20-foot-diameter tanks outside. They grow here to their final release size of nine to 12 inches.

they are about 10 to the pound. There they grow to their final release size of nine to 12 inches.

VERNESONI HAS BEEN RAISING FISH in Connecticut for the past 27 years. The hatchery program, he said, is vital to Connecticut's recreational trout fishing. Without it, he said, there wouldn't be nearly as much trout fishing available.

"A female Atlantic salmon may have 3,000 to 5,000 eggs. Of those, maybe three will reach maturity in the wild," Vernesoni said. In contrast, Atlantic salmon raised in the state's Kensington Hatchery have a 70 percent survival rate up to the point where they begin their sea migration.

Vernesoni said hatchery losses are due mainly to genetic defects and cannibalism. "If a fish has a crooked tail, he's not going to survive," he said. "There is also a certain amount of cannibalism. If one fish gets bigger, he may eat his friends."

In addition to providing for increased survival, the hatcheries also provide conditions that allow faster growth and bigger fish. Food, water temperature, and oxygen levels are kept at optimum levels. "We've found that 52 degrees is an excellent temperature for fish growth," Vernesoni said. Their food is a high protein mixture of fish meal and flour served in pellets ranging from the size of salt crystals to pencil erasers.

20

THE FISH, ONCE GROWN, are netted and brought to assigned areas where they are released into the water. At this point, they fall under the control of the DEP's conservation officers. The COs are the Fishery Bureau's eyes and ears at the stream site; in addition to enforcing fishing and licensing laws, the conservation officers keep track of the number of fishermen using the site and advise about possible changes in stocking procedures.

William Hyatt, supervisor of fisheries management, said that the numbers stocked each year in a given area depend, for the most part, on what has worked in the past.

"A good habitat would receive heavy stocking no matter what, but it would receive more if it was near a heavily populated area," Hyatt said.

Vernesoni receives his fish orders a year and a half before the season. "The management personnel tell us what they want," Vernesoni said. In this way, the hatcheries are able to coordinate the number grown with angler use. "The number of fishermen has a direct impact on the number we produce," he said.

THE BOTTOM LINE is, of course, the anglers. While initially the hatcheries were conceived as commercial ventures, Connecticut's hatcheries are now strictly a response to demands of freshwater

sport fishing. But, Hyatt said, the economic and social importance of this sport should not be underestimated.

"Fishing is part of our heritage and tradition," he said. "There were fishermen in this country since Colonial times, and the Indians were fishermen before that. To fish means to participate in that tradition."

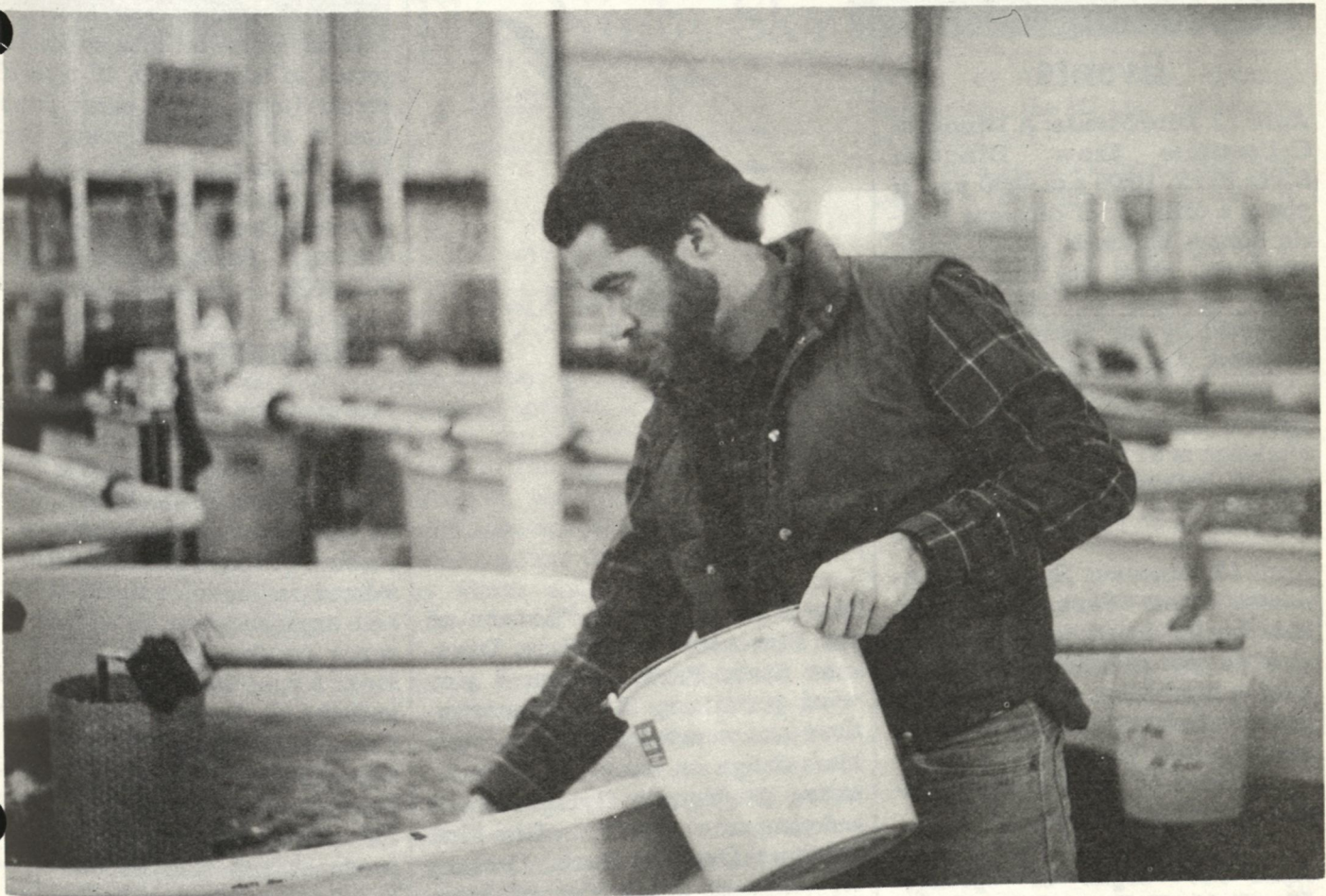
Fishing also has importance as a recreation industry in Connecticut, Hyatt said. "Last year, on the Farmington River alone, there were 45,000 days spent fishing, with an average out-of-pocket expense of \$6.73 per day, per person (not counting license or equipment costs). That is \$419,000 spent per year on one river."

According to the 1980 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation, compiled by the Department of Interior and the U.S. Census, 8.5 million fishing trips are made each year in Connecticut. Looking at the daily expenses for items such as bait, supplies, and food, Hyatt estimates that \$50 to \$80 million a year is spent on the sport. This figure does not include such reusable items as poles, reels, and boats.

Finally, there is the value of the recreation itself. Compared to others, Hyatt said, fishing is a relatively inexpensive sport that offers a great deal of relaxation and satisfaction.

THE FISHERIES PROGRAM has come a long way since its beginnings over a century ago. In the three decades that Vernesoni has been a part of it, he has seen the fishery program improve considerably. Before the opening of Quinebaug 15 years ago, the state produced only 400,000 trout — half of the 800,000 currently produced. The fish are also larger and healthier, he said, due to improvements in food and technology. "These improvements began in the 1960s and are continuing today," Vernesoni said. "And we're still improving."

The visitors' lobby and special viewing ponds at Quinebaug Valley Hatchery are open to the public from 10 a.m. to 4 p.m., seven days a week. Lobby exhibits include special displays, several aquaria, and viewing windows. Individuals and family groups are invited to observe trout in various stages of growth and to observe modern trout culture techniques. Larger groups should contact the hatchery manager at least two weeks in advance to arrange for a guided tour, slide show, and lecture. Quinebaug Valley Hatchery is located in Plainfield, about one half mile west of Central Village. For further information please call 564-7542.



Hatchery Manager David Sumner feeds the fish at Quinebaug. Without the hatcheries, there would be very little recreational fishing in Connecticut today.

The Bulletin Board

Summer Jobs

Teens, teachers, college students, and seniors — don't spend your whole summer vacation indoors. You may need to work, but you don't need to miss the fun.

Summer vacations were made for fresh air, sunshine, and the great outdoors. So, try a state park job this year.

Every summer, Connecticut state parks hire about 800 men and women to lifeguard, patrol, mow clean, and guide. If there is a state park near you, phone or visit the manager. He or she can tell you what's available and how to apply.

For further information — west of the river, phone 485-0226; and east of the river, phone 295-9523.

The DEP is an equal opportunity, affirmative action employer. ■

Upcoming DEP Events

April 12: DinoMania: A Dinosaur Collectibles Show, Dinosaur State Park. 10:00 a.m.-4:00 p.m. If you're a collector of dinosaur models, posters, postcards, games, books, toys, etc., share the fun. Show, trade, or sell at "DinoMania." Presented by the Friends of Dinosaur Park Association.

Dinosaur State Park is on West Street in Rocky Hill. Exhibit Center admission is \$1 for adults, 50 cents for children. Information: 529-8423.

April 18: Dinosaur Egg Hunt, Dinosaur State Park. 10:00 a.m. Kids (under fourth grade) are invited to join in this Saturday egg hunt — find what the "Easter Dinosaur" has left. Picnic area. No charge.

Presented by the Friends of Dinosaur Park Association.

April 25: "Signs of Spring," Chatfield Hollow State Park, Killingworth. 10 a.m. Winter has

ended and spring arrives. Come enjoy the rebirth of nature with DEP Naturalist Alberto Mimo. Spring flowers and arriving birds will be discussed. Information: 566-8108.

April 25: "Return of the Pterosaur" Kite Workshop — Dinosaur State Park. 9 a.m.-12 noon. Prepare for the park's May 2 "Return of the Pterosaur" Kite Fair. Find out what pterosaurs are all about — with lectures on aeronautics and pterosaur anatomy, films, etc. And make your own pterosaur kite. Limited to 15 participants, third to sixth grade: \$5. Call 529-8423 to pre-register.

Presented by the Friends of Dinosaur Park Association.



May 2: First Annual "Return of the Pterosaur" Kite Fair, Dinosaur State Park. 10 a.m.-4 p.m., wind permitting. Kite demonstrations and competitions. Base your kite's design on one of these fascinating pre-historic flying animals and compete at this first-of-its-kind event at Dinosaur Park. Contests for all ages and styles of kites. Videos, vendors, other pterrific stuff. Presented by the Friends of

Dinosaur State Park.

May 3: Third Annual "Krazy Kites Festival," Sherwood Island State Park. 12 noon-5 p.m. Kite demonstrations and stunt flyers. Competitions, prizes in classes, including most creative and largest kites, youngest and oldest kite flyers, and more. Vendors, or bring your own lunch. No charge to participate, but park has vehicle entrance fee. Sponsored by Frame 'n' Save stores.

Information: Richard Strizber, Norwalk, 846-9402

MAY 17: Eastern Association of Women's Rowing Colleges Championship Regatta, Lake Waramaug State Park, New Preston. The premiere college women's crew event in the country, at one of the best locations in the east for watching crew races. About 600 women from 14 colleges are expected to take part in 10 types of events (total of 26 races). Finish line is at Lake Waramaug State Park. No charge.

Information on starting times call Jay Combs 868-0563; Charles Willing, South Kent School, 927-4020. ■

Salmon Program

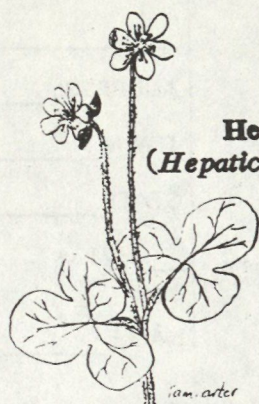
Produced by Connecticut Public Television with the cooperation of DEP Fisheries personnel, *The Way Home: Return of the Atlantic Salmon* provides a comprehensive and concise overview of the Atlantic salmon restoration program as seen and experienced by those most directly involved. It is scheduled to air at 8 p.m., Saturday, April 4, and at 2:30 p.m., Sunday, April 5, on all Connecticut Public Television channels (Hartford-24, Bridgeport-49, Norwich-53, Waterbury-12, and New Haven-65). Michael Dunphy produced and directed the show, and Lori da Cunha of the CPTV staff will provide additional information at Hartford 278-5310. ■

Trailside Botanizer

by
Gale W. Carter
Illustration by
Pam Carter

The blooming of the lovely hepatica (*Hepatica americana*), or liverleaf, is one of the early signs of spring. Skunk cabbage is the only one of our native wildflowers that blooms earlier. Despite hepatica's frail appearance, it is able to stand inclement weather conditions better than some of its more sturdy-appearing relatives. Look for it on dry, rocky hillsides where the humus is rich and the soil acid.

The flower of the hepatica may appear in March, but may blossom as late as June. Its flowers lack petals, but have colorful sepals that may be lavender, pink, blue, or white. There are numerous stamens and pistils.



Hepatica
(*Hepatica americana*)

Hepatica has leathery, lobed leaves with blunt tips. Its generic and common names come from the Greek and Latin meaning "liver-like," a reference to the shape of the leaves.

The leaves persist into the winter, but they tend to become brown by the time they are replaced by

new ones. This occurs soon after the plant blossoms.

Some spring flowers, like the Dutchman's breeches, are called ephemerals because they have only a brief flowering period, and then the whole plant disappears. Hepatica is not considered an ephemeral because its foliage persists after the forest closes over it in the spring. It has a kind of chlorophyll that is very efficient in manufacturing food, even with a limited amount of sunlight. This makes hepatica a very desirable plant for the shady garden.

Because of the shape of its leaves, hepatica was once believed to be useful in treating liver disorders, while the roots were used to produce a dye for staining mats and baskets.

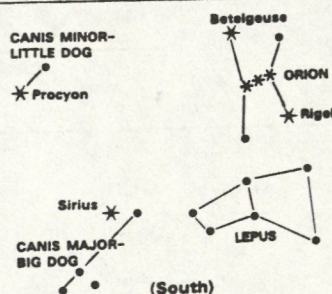
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The Night Sky

by
Francine Jackson

On Sunday, April 19, watch for the parade of fashions that comes with Easter. Every year, this movable feast conforms to one of the strangest time rules set in the calendar. Easter, as most everyone knows, is the Sunday after the full moon that falls on or after the day of the vernal equinox (which for us marks the first day of spring). However, traditionally, the vernal equinox was set at March 21st (even though it can occur on March 19th, 20th, or 21st), allowing Easter to fall anywhere between March 22nd (if the full moon happens on March 21st, which would be a Saturday) and April 25th (if the March full moon occurs on March 20th, the next would be on April 18th; if that is a Sunday, Easter would be the week later). This year, the full moon after March 21st is on Tuesday, April 14th, putting Easter on Sunday, April 19th.

In the sky, in the early evening hours, a little sign of this holiday



can be seen still peeking above the western horizon. To find it, look for Orion, the Hunter, the sign-post of winter. The three stars of Orion's belt and his knees and shoulders will soon disappear, along with the cold weather they brought. Before he slides completely below our view, however, draw a line from Orion's belt downward through his knees. Once there, you should just barely see six stars arranged in two very crooked rectangles, attached to each other. These make up Lepus, the Rabbit. I've always felt very bad for this tiny constellation: remember, not only is poor Lepus situated directly under the mighty hunter's feet, but he also has to stay crouched in the grass, to avoid de-

tection by Orion's two hunting companions, the Big and Little Dogs, to Orion's left.

Originally, this constellation was seen as a bird; however, in time, it was switched to a rabbit. When it changed, though, it kept two characteristics of a bird: Lepus could fly, and he could also lay eggs. So, when you do find poor little Lepus up in the sky, you are really gazing up at the world's first Easter Bunny.

Endnote

"It's lovely to live on a raft. We had the sky, up there, all speckled with stars, and we used to lay on our backs and look up at them, and discuss about whether they was made or just happened."

Mark Twain



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